

REMARKS

This is in response to the final Office Action mailed July 24, 2002, and the Advisory Action mailed November 27, 2002, in parent U.S. Application No. 09/404,245.

Claims 17-25, 28, 30-33, 63 and 65 stand rejected as anticipated by Makimura et al. Applicants submit that the claims presented in the parent application are patentable for the reasons of record. The independent claims are amended, however, to clarify that the plastically deformed non-elastomeric microfilaments are drawn, as suggested by the Examiner in the Advisory Action. In contrast, the fibers of Makimura et al. include a soluble polymer sea component, which is dissolved to leave an elastomeric core filament surrounded by smaller denier non-elastic filaments.

Applicants' fiber bundle differs in other respects from Makimura et al. as previously discussed. For example, the elastic core of Makimura et al. is clearly visible. In contrast, as recited in the independent claims, the non-elastomeric microfilaments substantially surround the elastomeric microfilaments so as to cover the elastomeric microfilaments from view.

Further the microfilaments of the claimed fiber bundle differ in cross section from the microfilaments of Makimura et al. In Makimura et al., the precursor fiber include an elastomeric polymer core component with a round cross section surrounded by the soluble sea component with non-elastomeric polymer components distributed therein. After the soluble polymer is dissolved, the elastomeric component has a generally round cross section.

In contrast, the microfilaments of the present invention can have a non-round configuration. For example, in one embodiment of the invention, the precursor composite fiber has a pie/wedge shape, with alternating polymer component having a substantially triangular cross section. See Figure 1A. After splitting into its respective components, indicated by reference numbers 6 and 8, the resultant microfilaments will have a substantially triangular cross section. See new claim 89.

Applicants respectfully submit that the claimed invention is not anticipated by Makimura et al. and accordingly respectfully request withdrawal of this rejection.

Claims 17-25, 28, 30-33, 48-59, 63-65, 67-75 and 82-88 stand rejected as anticipated by Gillespie et al. Applicants respectfully submit that the claims presented in the parent application are patentable over Gillespie et al. for the reasons of record. The claimed invention includes a combination of elastically and plastically deformed multifilaments that gives rise to differential lengths and resulting bulking within the claimed fiber bundles. The fibers of Gillespie et al. lack the differential deformation between the fiber components. Moreover, Gillespie et al. indicates that the fiber components have substantially identical lengths after splitting. See Figures 5, 6, 8, 10 and 11 of Gillespie et al.

As noted above, the independent claims are amended to clarify that the plastically deformed non-elastomeric filaments are drawn. The claims presented herein are even further removed from Gillespie et al. because Gillespie et al. do not teach drawing to impart plastic deformation to a non-elastomeric microfilament component. Accordingly Applicants submit that the claimed invention is patentable over Gillespie et al. as well and respectfully request withdrawal of this rejection.

Claim 27 stands rejected as obvious in view of Makimura et al. or Gillespie et al. Claim 27 is amended as suggested by the Examiner in the Advisory Action to clarify that the fiber bundle has the color of the outer non-elastomeric microfilaments in the non-stretched condition and the color of the inner elastomeric microfilaments in the stretched condition. Accordingly Applicants respectfully submit that Claim 27 is patentable as well and request withdrawal of this rejection.

Claims 76-79 stand rejected as obvious over Gillespie et al. in view of Pike et al. For the reasons previously submitted, Applicants submit there is no motivation to combine the Gillespie et al. and Pike patents. Even if such a combination had been made, the result would be different from that claimed.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is now in condition for allowance, which action is respectfully solicited. Should the Examiner have any questions regarding the foregoing, it is respectfully requested that she contact the undersigned at her convenience.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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"Express Mail" Mailing Label Number EL910298265US
Date of Deposit: May 14, 2003

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Grace R. Rippey

Version With Markings to Show Changes Made:

17. (Three times amended) A fiber bundle comprising a plurality of bulked drawn plastically deformed non-elastomeric microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric and non-elastomeric microfilaments originating from a common multicomponent fiber having elastomeric and non-elastomeric components, wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and further wherein the weight ratio of the non-elastomeric microfilaments within the fiber bundle is substantially identical to the weight ratio of the non-elastomeric component within the multicomponent fiber.

Cancel claim 22.

27. (Amended) The [yarn of Claim 26] fiber bundle of Claim 1, wherein said non-elastomeric microfilaments and said elastomeric microfilaments are different colors, and wherein said [yarn] fiber bundle is the color of the non-elastomeric microfilaments in its non-stretched condition and said fiber bundle is the color of the elastomeric microfilaments in its stretched condition [has a first color in its unstretched condition and a different color in its stretched condition].

28. (Three times amended) A fiber bundle comprising a plurality of drawn bulked plastically deformed non-elastomeric polypropylene microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric polyurethane microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric polyurethane and non-elastomeric polypropylene microfilaments originating from a common multicomponent fiber having elastomeric polyurethane and non-elastomeric polypropylene components which split upon thermal activation, and the weight ratio of the non-

elastomeric polypropylene microfilaments within the fiber bundle is substantially identical to the weight ratio of the non-elastomeric polypropylene component within the multicomponent fiber.

30. (Three times amended) A fabric comprising a plurality of drawn bulked plastically deformed non-elastomeric microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric and non-elastomeric microfilaments originating from a common multicomponent fiber having elastomeric and non-elastomeric components, wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and further wherein the weight ratio of the non-elastomeric microfilaments within the fiber bundle is substantially identical to the weight ratio of the non-elastomeric component within the multicomponent fiber.

48. (Three times amended) A drawn splittable multicomponent fiber comprising:
at least one component comprising an elastomeric polymer, at least a portion of which is exposed to the outer peripheral surface of said fiber, which is elastically deformed so that said elastomeric component is capable of substantially complete recovery to its original length upon release of drawing tension; and

at least one component comprising a non-elastomeric polymer, at least a portion of which is exposed to the outer peripheral surface of said fiber, which is plastically deformed and longer than said elastomeric component upon dissociation therefrom so that said non-elastomeric component maintains substantially its same length after drawing upon release of drawing tension,

wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal treatment and said elastomeric and non-elastomeric polymer components are arranged in distinct unocclusive cross-sectional segments so that the polymer components are not physically impeded from being separated from one another.

59. (Three times amended) A fabric comprising a plurality of drawn splittable multicomponent fibers comprising at least one component comprising a non-elastomeric polymer and at least one component comprising an elastomeric polymer, wherein at least a portion of each of said non-elastomeric and elastomeric polymer components is exposed to the outer peripheral surface of said fiber, wherein said at least one polymer component comprising a non-elastomeric polymer is plastically deformed and longer than said elastomeric component upon dissociation therefrom so that said non-elastomeric component maintains substantially its same length after drawing upon release of drawing tension and wherein said at least one polymer component comprising an elastomeric polymer is elastically deformed so that said elastomeric component is capable of substantially complete recovery to its original length upon release of drawing tension and release of adhesion to the non-elastomeric component; wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and said elastomeric and non-elastomeric polymer components are arranged in distinct unocclusive cross-sectional segments so that the polymer components are not physically impeded from being separated from one another.

63. (Twice amended) A fiber bundle comprising a plurality of drawn bulked plastically deformed non-elastomeric microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric and non-elastomeric microfilaments originating from a common multicomponent fiber whose cross section consists of contiguous segments of elastomeric and non-elastomeric components, wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and after separation the elastomeric and non-elastomeric microfilaments can be recombined to cumulatively define the approximate cross section of said multicomponent fiber.

64. (Twice amended) A fiber bundle comprising a plurality of drawn bulked plastically deformed non-elastomeric microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric and non-elastomeric microfilaments originating from a common multicomponent fiber having elastomeric and non-elastomeric components, wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and further wherein said elastomeric microfilaments have substantially the same denier as said non-elastomeric microfilaments.

65. (Twice amended) A fiber bundle comprising a plurality of drawn bulked plastically deformed non-elastomeric microfilaments substantially surrounding and covering from view in an unstretched condition a plurality of elastomeric microfilaments that are shorter than and less bulky than said non-elastomeric microfilaments, said elastomeric and non-elastomeric microfilaments originating from a common multicomponent fiber having elastomeric and non-elastomeric components, wherein said elastomeric polymer has a solubility parameter (δ) sufficiently different from said non-elastomeric polymer so that said elastomeric component and said non-elastomeric component split upon thermal activation and further wherein the denier of said fiber bundle and the denier of said multicomponent fiber are substantially identical.